IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-17. (*Cancelled*).

18. (*Previously Presented*) A deformable mirror having a displacement detecting function, comprising:

a flexible thin film having a reflecting surface and an upper electrode to be deformed by electrostatic attraction; and

a control electrode and a capacitance detecting electrode, located opposite to the flexible thin film,

wherein a displacement of the reflecting surface can be calculated from a static capacitance between the upper electrode and the capacitance detecting electrode, and

wherein a high-frequency voltage for detecting the static capacitance having a frequency much higher than a mechanical resonant frequency of the reflecting surface is superposed on a voltage of a constant-voltage source for deforming the reflecting surface, and a resistance is connected to a grounding side of the upper electrode to detect an amount of displacement of the reflecting surface from a phase and amplitude of an electric current flowing through the resistance.

19. (*Cancelled*).

20. (*Previously Presented*) A deformable mirror having a displacement detecting function according to claim 18, wherein the control electrode and the capacitance detecting electrode are configured separately in an identical layer.

21. (*Previously Presented*) A deformable mirror having a displacement detecting function according to claim 18, wherein the control electrode and the capacitance detecting electrode are configured separately in different layers.

22. (*Previously Presented*) A deformable mirror having a displacement detecting function, comprising:

a flexible thin film having a reflecting surface and an upper electrode to be deformed by electrostatic attraction; and

a control electrode and a capacitance detecting electrode, located opposite to the flexible thin film,

wherein a displacement of the reflecting surface can be calculated from a static capacitance between the upper electrode and the capacitance detecting electrode, and

wherein a high-frequency voltage of a frequency much higher than a mechanical resonant frequency of the reflecting surface is applied to the capacitance detecting electrode, and a resistance is connected to a grounding side of the upper electrode to detect an amount of displacement of the reflecting surface from a phase and amplitude of an electric current flowing through the resistance.

23. (*Previously Presented*) A deformable mirror having a displacement detecting function according to claim 22, wherein the control electrode and the capacitance detecting electrode are configured separately in an identical layer.

24. (*Previously Presented*) A deformable mirror having a displacement detecting function according to claim 22, wherein the control electrode and the capacitance detecting electrode are configured separately in different layers.

25. (*Previously Presented*) A deformable mirror having a displacement detecting function, comprising:

a flexible thin film having a reflecting surface and an upper electrode to be deformed; and

a control electrode and a capacitance detecting electrode, located opposite to the flexible thin film,

wherein a displacement of the reflecting surface can be calculated from a static capacitance between the upper electrode and the capacitance detecting electrode, and

wherein a high-frequency voltage for detecting the static capacitance having a frequency much higher than a mechanical resonant frequency of the reflecting surface is superposed on a voltage of a constant-voltage source for deforming the reflecting surface, and a resistance is connected to a grounding side of the upper electrode to detect an amount of displacement of the reflecting surface from a phase and amplitude of an electric current flowing through the resistance.

26. (*Cancelled*).

27. (*Previously Presented*) A deformable mirror having a displacement detecting function according to claim 25, wherein the control electrode and the capacitance detecting electrode are configured separately in an identical layer.

28. (*Previously Presented*) A deformable mirror having a displacement detecting function according to claim 25, wherein the control electrode and the capacitance detecting electrode are configured separately in different layers.

29. (*Previously Presented*) A deformable mirror having a displacement detecting function, comprising:

a flexible thin film having a reflecting surface and an upper electrode to be deformed; and

a control electrode and a capacitance detecting electrode, located opposite to the flexible thin film,

wherein a displacement of the reflecting surface can be calculated from a static capacitance between the upper electrode and the capacitance detecting electrode, and

wherein a high-frequency voltage of a frequency much higher than a mechanical resonant frequency of the reflecting surface is applied to the capacitance detecting electrode, and a resistance is connected to a grounding side of the upper electrode to detect an amount of displacement of the reflecting surface from a phase and amplitude of an electric current flowing through the resistance.

30. (*Previously Presented*) A deformable mirror having a displacement detecting function according to claim 29, wherein the control electrode and the capacitance detecting electrode are configured separately in an identical layer.

31. (*Previously Presented*) A deformable mirror having a displacement detecting function according to claim 29, wherein the control electrode and the capacitance detecting electrode are configured separately in different layers.

32. (*New*) A deformable mirror having a displacement detecting function, comprising:

a flexible thin film having a reflecting surface and an upper electrode to be deformed by a electrostatic attraction;

a control electrode which is also used as a capacitance detecting electrode, located opposite to the flexible thin film;

a high-frequency superposing circuit provided with a voltage source and a high-frequency source to superpose a high-frequency voltage; and

a capacitance detecting circuit for detecting a change of a capacitance between the control electrode and the upper electrode,

wherein the upper electrode is connected to the capacitance detecting circuit, and the control electrode is connected to the high-frequency superposing circuit.